MANUAL

Sunways Display DE 500
Large Display for Photovoltaic Systems

sunways
Photovoltaic Technology

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Installation Instructions

Congratulations on your decision to purchase the Sunways Display. Thanks to the generous visualisation of measured values, you can now demonstrate the context of photovoltaic power generation to a larger public or specifically monitor the displayed values.

General Information

- Please read through these instructions before you begin with the installation and commissioning of the large display.
- We have made an effort to present the contents of these installation instructions completely and properly. We would greatly appreciate it if you would report any errors you find to us.
- All trademarks referred to in this document are the property of the respective owner.
- These instructions are part of the product. They contain important information on the commissioning and use of the product. Please also take this into account when passing on the display to others.
- Proper use of the Sunways Display: The device is used to acquire and visualise measuring data.
- The manufacturer assumes no responsibility for improper or inappropriate use of the product, nor for any related damage, injuries or warranty claims.

Safety Precautions

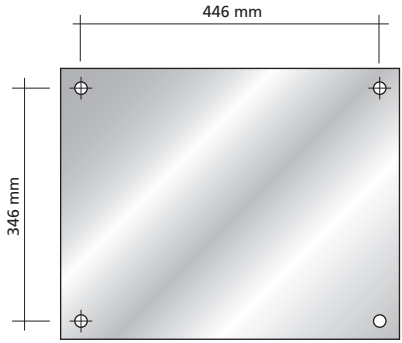
- Improper installation of the large display can cause injuries and damage!
- The large display is intended for wall installation!
- Never connect the display to voltages greater than 12 V or alternating current!
- Do not pull or pry on the front during installation!
- Only hang on walls, and not above persons or passageways!
- This unit consists of sensitive electronic components, and must therefore be protected from the effects of shocks and sudden climatic changes!
- Exercise caution when handling the large display! Avoid jolts to the housing!
- Do not open the housing or insert pointed objects into it!
- Use only the original plug-in power supply. Following use, or if the device fails to operate as expected, disconnect the plug-in power supply from the grid and protect it against being switched on again!
- The plug-in power supply is only suitable for use in dry rooms!

1. Installation

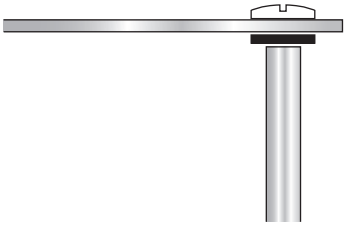
After correct installation the large display is water-resistant and is therefore also suitable for outdoor use.

Installation notes:

Hole spacing



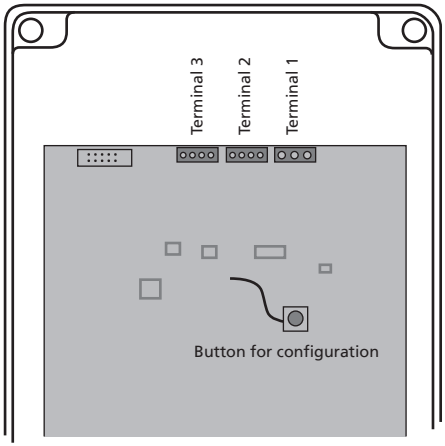
The stainless steel washer must be positioned directly on the spacer.
The washer will then be slightly loose.



Caution !

Do not overtighten. No warranty for broken glass.

Unscrew the housing cover (6 screws) to connect and configure the device.
This image shows the situation:



Now connect the power supply cables and the data cable according to the description in section 2, depending on the data source used.

Configure the large display with the button according to section 3.

Then replace the housing cover and tighten the screws.
Please ensure that the housing screws and the cable gland are tight in order to ensure that the housing is watertight.

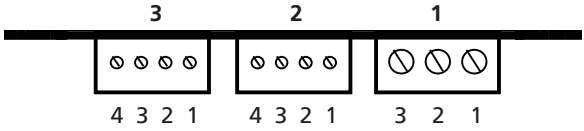
2. Connecting the power supply

The large display is equipped with a pulse input.

The large display may have to be configured for the required data input.
The configuration is described in section 3.

The common connection options for the large display are described below.
Please use the connection description corresponding to the configured input.

Pin assignment for the screw terminals



The upper end face of the PCB has 3 terminals, which are assigned as follows:

Terminal	Function	Assignment
1	Power supply	Pin 1 : 0 V (–) Pin 2 : free Pin 3 : + 7.5 V DC; 0.3 A
2	no function	
3	no function	Pin 1 and Pin 2
	Pulse input (potential-free N/O contact)	Pin 3 : Pulse + Pin 4 : Pulse –

Power supply connection (plug-in power supply unit)

The delivery scope of the large display includes a plug-in power supply unit. This transforms the 230 V AC mains voltage down to the voltage required for the large display.

Connect the low-voltage output (unconnected wire ends) of the plug-in power supply unit to **Terminal 1 Pin 1 (–)** and **3 (+)** of the large display.
Make sure the polarity is correct.

If the wires of the plug-in power supply unit have to be extended, the extension wires should have a minimum cross-section of 0.75 mm^2.

After the installation work on the large display has been completed, connect the plug-in power supply unit to a 230 VAC socket outlet.

2.1 Connection to an electricity meter or Sunways Solar Inverter with pulse output

The pulse input of the large display is designed for connection to potential-free N/O contacts of electricity meter with pulse output or similar. Connection to current-controlled pulse outputs is not possible.

The pulse input facilitates connection to any system, regardless of the manufacturer. The pulse rate can be adjusted to the electricty meter or Sunways Solar Inverter used.

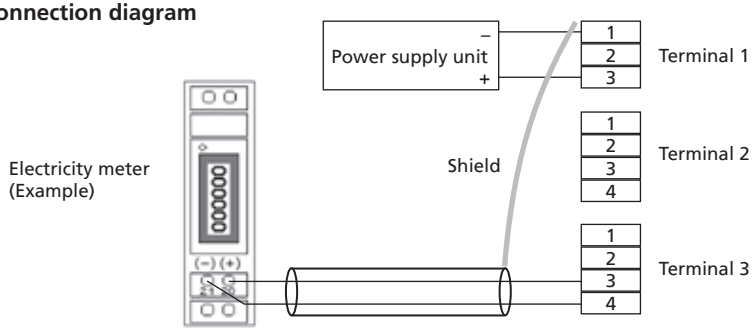
2.1.1 Description of connection

Connect the pulse output (potential free contact) of the electricity meter or Sunways Solar Inverter to **Terminal 3** of the large display. A shielded cable must be used for this connection. The cable cross section is not a critical factor.

Pulse + (Terminal 3) is connected to the positive pulse output (+).
Pulse – (Terminal 4) is connected to the negative pulse output (–).

Connect one end of the shield to 0 V (–) (Terminal 1, Pin 1) of the large display.

2.1.2 Connection diagram



2.1.3 Cable Length

When using a shielded cable (e.g. YSTY telecommunications cable or LIYCY control cable), a distance of a 100 m cable length from the electricity meter or Sunways Solar Inverter to

the large display may be reached. The cable must always be installed away from heavy current consumers and their supply and discharge cables.

For cable lengths over 100 m to approx. 600 m from the electricity meter or Sunways Solar Inverter to the large display, a separate signal amplifier set may be used.

2.2 Connection to a Sunways Communicator

The large display can be connected directly to a Sunways Communicator. Use the DO 1 output of the Communicator.

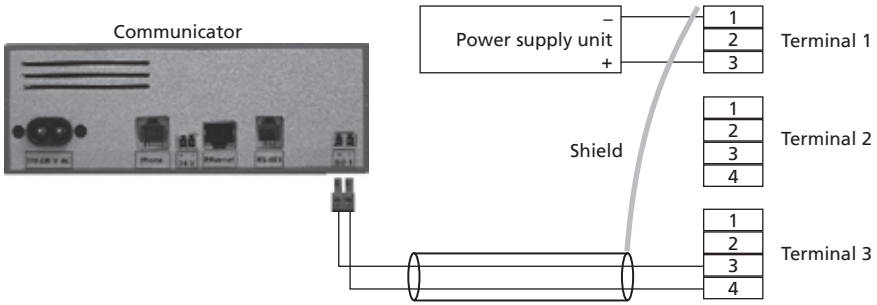
2.2.1 Description of connection

Connect the DO 1 output (potential free contact) of the Communicator to Terminal 3 of the large display. A shielded cable must be used for the connection to the Communicator. The cable cross section is not a critical factor.

Pulse + (Terminal 3) is connected to the positive pulse output (+) of the Communicator.
Pulse – (Terminal 4) is connected to the negative pulse output (–) of the Communicator.

The shield is connected at one end to 0 V (–) (Connection 1, Terminal 1) of the large display.

2.2.2 Connection diagram



3 Configuration of large display with pulse input

The large display is configured before final assembly.
The following can be set:

- Data source (always ‚0' for connection to electricity meter or Sunways Communicator)
- Starting value for total yield (kWh)
- Pulse rate (pulses / kWh)

The setting is carried out using a button provided on the PCB, see Fig. on page 6.
The amount of time the button is pressed is decisive for the reaction of the large display:

	Dauer	Reaction	Reaction
Briefly press button	< 1 second	Value of the position to be changed is increased by 1.	Value of the position to be changed is increased by 1.
Press and hold button	> 1,5 seconds	The position to be changed is moved one position to the left and/or adopt the setting.	The decimal point is moved one position to the left and/or the system jumps to the next setting value

Settings

a) Press and hold the button when connecting the plug-in power supply:
« ConFiG » appears in the top display.

b) After the button is released, « SourcE » (data source) appears in the top display.

Leave the value in the second line at 0. Press and hold the button to set the start value (total yield in kWh).

c) The top display now shows « StArt ».
The start value can now be set.

d) The value to be set is shown in the centre display. The start value can be set as follows, starting with the right-hand digit.

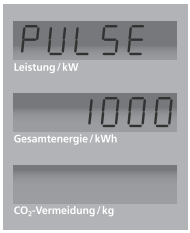
- Briefly press button: The value of the position increases by one.
  Important: The value of the position that can be changed does not change until the button is released!
  Note: The value of the position jumps back to 0 after 9 is reached. If you have accidentally skipped a value, you can reach the desired value again by briefly pressing the button several times.

- Press and hold button: The decimal point jumps to the next position to the left. (Exception: digit on extreme right, where no decimal point is displayed)
  Important: Hold down the button until the decimal point jumps to the next position!

All 6 digits for the total yield have to be set according to this procedure for the value to be saved, even if that digit is to remain as 0

e) After all positions of the starting value have been changed as desired, you can access the setting of the pulse rate by pressing and holding the button again.

« PULSE » appears in the top display.



The pulses/kWh are set in the same ways as the starting value. The setting of the pulses must be completed for the value to be saved.

All 5 digits for the pulse value have to be set according to this procedure for the value to be saved.

Please note that the maximum pulse rate may not be greater than 15 pulses/sec. Calculate the pulse rate depending on the size of the solar system using the following formula:

Pulse rate [pulses/kWh] = 50,000 / system size [kWp]

The pulse rate must be set on your large display as well as your Sunways Solar Inverter.

Note: In case of premature cancellation (interruption of the power supply), the value set up to that point will not be applied.

f) Pressing and holding the button applies the settings and the display switches into the normal measuring mode. This can be recognised by carrying out a segment test (All display segments will illuminate briefly).

4 Techncal Data

No. of measured values that can be shown	3	
Display elements	7-segment LCD displays with 25 mm number height Colour: black on silver	
Displayed measured values	Output : Yield : CO_2-reduction :	6 digits, max. up to 9999.99 kW 6 digits, max. up to 999999 kWh 6 digits, max. up to 999999 kg
Factor of CO_2 reduction	0.70 kg / kWh	
Housing dimensions W x H x D in mm	ca. 500 x 400 x 35	
Housing material	Front panel : Electronics housing:	Single-pane safety glass, 5 mm ABS plastic
Operating temperature	-15°C ... +50°C	
Storage and transport temperature	-20°C ... +60°C	
Supported data sources	- Pulse generator with potential-free N/O contact - Sunways Communicator	
Input, interface	Pulse (for voltageless N/O contact, minimal pulse length: 2 ms) e.g. electricity meter with pulse output S0 or Sunways Communicator interface DO1	
Power supply	External plug-in power supply Input : Output :	 230 V AC 7.5 V DC, 0.3 A
Power consumption	0,5 W	
Warranty	2 years	
Standards	CE	

Subject to changes, including those of a technical nature.

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